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Narang

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[54] **CONSERVATIVELY PRINTED DISPLAYS AND METHODS RELATING TO SAME**

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[*] Notice: This patent is subject to a terminal disclaimer.

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Related U.S. Application Data

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[52] U.S. Cl. **427/559; 427/558; 427/96; 427/98; 427/261; 427/287; 430/315; 430/324**

[58] Field of Search **427/261, 283, 427/287, 96, 98, 558, 559; 430/315, 324**

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[57] ABSTRACT

Display elements of computer screens and other information displays are printed using conservative printing techniques. Contemplated electronic components that can be conservatively printed at the display element level include switches, transistors, capacitors, memory elements, and actuators. Contemplated light path components that can be conservatively printed at the display element level include light pipes or other optical wave guides, mirrors, light emitting diodes, liquid crystals, and actuators. The conservatively printed components may advantageously be produced by a process that includes depositing a precursor onto the substrate in a desired pattern, depositing an appropriate ligand onto the substrate, and applying sufficient energy to transfer electrons from the ligand to the precursor, thereby decomposing the precursor to form a precipitate. In an especially preferred class of embodiments, light emission at individual display elements is controlled by a conservatively printed moving actuator. The teachings herein may advantageously be employed in very large displays (measuring more than a meter across), including larger televisions such as “hang-on-the-wall” televisions, billboards, custom advertising, and presentation displays. The teachings herein may also advantageously be employed in flexible displays, such as those printed on fabrics utilized in clothing, or wrapped about a curved surface.

16 Claims, 3 Drawing Sheets

